AAIB Bulletin No: 9/93 **Ref: EW/G93/05/22** **Category: 1c**

Aircraft Type and Registration:	Jodel D112, G-BCGL
No & Type of Engines:	1 Continental A65-8F piston engine
Year of Manufacture:	1957
Date & Time (UTC):	22 May 1993 at 1634 hrs
Location:	Platthouse Farm, Fairseat, Kent
Type of Flight:	Private
Persons on Board:	Crew - 1 Passengers - 1
Injuries:	Crew - 1 Minor Passengers - 1 Minor
Nature of Damage:	Severe damage to wings, landing gear and nose
Commander's Licence:	Commercial Pilot's Licence with IMC and FI Ratings
Commander's Age:	63 years
Commander's Flying Experience:	11 350 hours (of which 200 were on type) Last 90 days - 66 hours Last 28 days - 22 hours
Information Source:	Aircraft Accident Report Form submitted by the pilot and furtherinvestigations by AAIB

The aircraft was being operated from a private grass strip. The start-up and power checks were completed normally and carburettor heat was applied for 10 sec. At full throttle for take off the RPM appeared normal and the carburettor hot air was checked again. After take off, at a height of 50 ft, the engine faltered and the pilot noticed that the RPM had reduced from 2150 to between 1600 and 1700. The engine then failed completely and the aircraft descended. The pilot raised the nose to avoid a bush and the right wing dropped. The pilot applied left rudder as the aircraft hit the ground and overturned. Both occupants were able to evacuate the aircraft without difficulty.

Two and a half weeks previously the aircraft had suffered a similar power failure. From full fuel the aircraft had flown for 1 hr 25 min to Headcorn where it was shut down for 20 min. After take off the power failed in a similar way to the accident case. The pilot successfully landed ahead but as he did so the engine restarted. Later, with the tank topped up to full, the aircraft was uneventfully flown to its home strip. During an examination later some water was found in the fuel system.

An insurance surveyor examined the aircraft after the accident and reported that the engine was free to rotate and that he was able to obtain sparks at the sparking plugs. The valve gear was intact but he found one cylinder to be low on compression and the plugs on the right side were sooty and oily. He also found the right side inlet and exhaust passages to be sooty. When the owner drained the fuel tank he found the fuel and the fuel filter to be clean and when the fuel pipe was disconnected from the carburettor fuel flowed freely through it from the tank. The only anomaly found in the fuel system was a small lump of grey putty-like material found in the drain plug.

Both magnetos (Bendix Scintilla) and the carburettor (Stromberg) were removed from the engine for examination by AAIB. The impulse magneto (model S4RN-21) performed erratically on test at low speed though the impulse mechanism itself did operate correctly and, after about 10 min of continuous running, its performance at high speed also deteriorated and became erratic. This magneto was stripped and its coil, an obsolete type, was found to be visibly deteriorating. The rotating magnets and a cam washer in this magneto were also found to be obsolete. FAA AD 73-07-04 and the related Bendix Service Bulletin No 560A (coil and rotating magnets) had not, therefore, been applied to this magneto and neither had SB 557 (cam washer replacement). Other Bendix SB's and FAA AD's are applicable but were not checked for on this magneto. The second magneto, a Bendix Scintilla SF4RN-8, performed satisfactorily on test. Bendix SB 586A recommends, in summary, that magnetos be overhauled when the engine is overhauled but that, irrespective of engine operating hours, the magnetos should be overhauled after 4 years. The engine log book for G-BCGL records that the magneto points were cleaned and adjusted 201 operating hours before the accident in 1981.

The Stromberg carburettor (model NA-S3A1) had been damaged in the crash but it was stripped and examined. The inlet filter was clear as were the jets and the float and needle system was intact with no wear apparent. The carburettor bowl is normally sealed to the carburettor body with a dry gasket but here a sealant had been used. A small quantity of dry sealant fragments were found in the bowl and sealant was also found to be congesting one of the internal passages but it was not clear what effect this would have had on the carburettor's operation.

At the time of the accident the aircraft had completed its annual check for its Permit to Fly 11 weeks before and had flown for 7 hours.